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Flexibility in Sri Lanka's Labor Market

Martin Rama

Not all labor regulations in Sri Lanka are distortive, but the Termination of Employment of Workmen Act does reduce firing and hiring. Repealing the Termination of Employment of Workmen Act would facilitate restructuring in the regulated sector and reduce the average spell of unemployment.

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Summary findings

Sri Lanka has had double-digit unemployment rates for more than a decade. And by 1990, 85 percent of the unemployed had spent more than a year searching for a job. Rama analyzes whether high unemployment rates and long spells of unemployment are the result of profuse legislation of the labor market or of market imperfections that would have prevailed even without government intervention.

He shows that not all of the labor market regulations currently in force are highly distortive. Despite minimum wages set by wage boards, and despite collective bargaining, real wages are neither too high nor too rigid. And despite the freedom of unions, labor relations are peaceful in the private sector.

A mismatch of skills is only marginally relevant, says Rama. Unemployment is better understood as the outcome of job search in a significantly heterogeneous job market.

It is worth remembering that Sri Lanka is a partially closed economy, in which many import-competing activities are greater than they should be, because of protection. Rama concludes that it is necessary to repeal the Termination of Employment of Workmen Act to avoid the massive destruction of jobs in those activities, should foreign trade be further liberalized. Many firms the protected sectors would have to restructure and shut down some of their product lines. By being prevented from doing so, these firms might just go bankrupt, and many more jobs would be lost as a result.

Relaxing restrictions on retrenchment would unambiguously increase the turnover rate, says Rama. There would be both more hiring and more firing. The unemployment rate would increase in the short run but the average spell of unemployment would be shorter. This would help solve the explosive problem of unemployed youths.

This conclusion does not apply to tea plantations, given the few alternative sources of employment for the Indian Tamil workers and given ethnic obstacles to their labor mobility.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger effort in the department to understand the impact of labor market policies and institutions on economic performance. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Cook, room N5-057, extension 33902 (28 pages). March 1994.

Labor Market Flexibility in Sri Lanka

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1. Introduction

In spite of a per capita output of 500 dollars per year, Sri Lanka has social indicators which compete with, and sometimes even exceed, those of high-income developing countries. This outstanding achievement reflects a long lasting concern for human development and equity, which has also permeated labor market policies and regulations. Sri Lanka has indeed ratified 29 International Labor Office (ILO) conventions, about twice as many as its neighboring East Asian countries. Thus, features such as stringent legal restrictions on firing, wage bargaining mechanisms involving the main social partners, and a multiplicity of training programs by government agencies characterize the labor market.

Meanwhile, labor market developments are highly relevant in terms of social and political stability. The unemployment rate has exceeded 14% since 1980, which is high by international standards. More importantly, exit rates out of unemployment are very low, as suggested by the fact that in 1990, 85% of the unemployed had spent more than one year searching for a job.[1] Such extremely long unemployment spells have been at the roots of two violent uprisings by educated youth, in 1971 and 1987-89. Although the methods used by the government to crush the insurrection might act as a deterrent, some fear that there will be similar uprisings in the near future if nothing is done to stimulate job creation.

This paper analyzes the reasons for high unemployment in Sri Lanka. Is it related to the profusion of labor market policies and regulations, or to labor market imperfections which would prevail even in the absence of any government intervention? If policies and regulations are to blame, which of them are really harmful and which are not? Put differently: do long unemployment spells result from wage rigidity, from constraints on firing, from both, or from neither? Are there any complementarities between government interventions into the labor market on the one hand, and labor market imperfections on the other hand? For instance, do training programs actually help matching vacancies and candidates?

To answer these questions, it is necessary to understand how the Sri Lankan labor market works. Section 2 of the paper provides a brief presentation of the institutional framework, with the different nature of the regulations and the uneven extent of labor mobility leading to the identification of three

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[1] Unless otherwise specified, all labor market figures are from the 1980-81 *Labor Force and Socio-Economic Survey*, the 1981 *Census of Population*, the 1981-82 *Consumer Finance and Socio-Economic Survey*, the 1985-1986 *Labor Force and Economic Survey*, and the 1990, 1991 and 1992 *Labour Force Surveys*, by the Department of Census and Statistics, Colombo.

distinct labor market segments. Section 3 analyzes whether labor costs are excessively high, and whether real wages are excessively rigid. Since neither of these two appears to be the explanation for high unemployment, section 4 makes a critical review of other widely accepted explanations, and suggests that Sri Lankan unemployment may better understood as the product of job search in a context of job heterogeneity. Section 5 puts the main findings together by means of a simple efficiency-wage model, which is used to assess the effects of changes in labor market regulations. Section 6 discusses the policy implications of the analysis.

2. A Segmented Labor Market

The Sri Lankan labor market can be described in terms of segmentation, by considering three different sectors: tea plantations, activities in which labor market regulations are enforced (the "regulated" sector hereafter) and activities in which they are not (the "non-regulated" sector). Note that although tea plantations formally belong to the regulated sector, it is better to treat them separately, because of their very specific features.

a) The Plantation Sector

In the tea sector, 22 management companies provide employment to 0.4 million Tamil workers (roughly 7% of total employment in Sri Lanka). With their families, they represent a resident population of about one million people. Tamil workers were originally brought from India by the British during the colonial period, and they acquired Sri Lankan citizenship only in recent years. Fears of ethnic clashes between the Sinhalese majority of the country and its Tamil minority discourage the geographical mobility of tea workers out of the plantation area. However, Sri Lankan citizenship of Indian Tamils gave significant political leverage to the most powerful trade union in the area, the Sri Lankan Workers Congress, whose leader was elected to the cabinet.

With the exception of a few estates, tea plantations are over-staffed. This is the result of a generous hiring of workers' children and little replanting investment after plantations were nationalized, in 1970. In fact, investment went down even before 1970, since British managers were aware of the

nationalization prospects.[2] As a result, the Sri Lankan share of the world market for tea declined to about 10%, down from nearly 40% at independence. Such a dismal performance started to be reversed in 1992, when an agreement was reached for privatizing the management of the estates. So far, this process has involved 20-year contracts, which is not enough for investments in replantation to be profitable.

New managers were required to provide job security, in spite of the over-staffing problem. Job security was given in exchange for support by the Sri Lankan Workers Congress to the privatization process. Dismissals on disciplinary grounds are allowed (actually, more than 30 foremen out of nearly 250 were fired by the new managers), but there can be no staff retrenchment for economic reasons. Moreover, after management was transferred to the private sector, the government continued to decide on wages, which were raised by 30% in the first quarter of 1993, in excess of an annual inflation rate of 13%. In addition, the government is trying to force the new managers to guarantee a minimum of 6 days of work per week whatever the season, as first stated by the Estate Labour (Indian) Ordinance of 1889.

b) The Regulated Sector

The regulated sector covers roughly one fourth of Sri Lankan jobs: about 0.7 million of them are in central and local government, while the rest (0.9 million) are in private firms and state corporations.[3] The public sector is characterized by job security. However, employment in state industries has slightly declined over time as a result of privatization and severance pay programs (see Fiszbein, 1992). As regards private firms in the regulated sector, they have to comply with a profuse and intricate set of labor legislation, whose first layers can be traced to the colonial period. This legislation concerns social security contributions (to be analyzed in section 3.a), firing restrictions and wage setting mechanisms.

Firing restrictions are set by the Industrial Disputes Act (IDA) and the Termination of Employment of Workmen Act (TWA). The former, which regulates disciplinary dismissals, does not

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[2] For an overview of recent economic history in Sri Lanka, see Cuthbertson and Athukorala (1991), and Bruton (1992).

[3] The number of government employees comes from the 1990 *Census of Public Sector and Corporation Sector Employment*, Department of Census and Statistics, Colombo. The employment estimate for private firms and state corporations is the number of active accounts with the Employees Provident Fund, minus employment in tea plantations.

put unreasonable constraints on private sector firms. Managers usually complain about the time length of the review process by the Commissioner of Labour (about one year), not about its fairness. The TWA, in turn, prevents any retrenchment on non-disciplinary grounds without the written consent of the displaced workers in firms with 15 or more personnel. Since consent requires generous severance pay, the TWA is seen as a major constraint by private firms (Levy, 1993, and World Bank, 1993b).

Firms that attempted to discontinue part or all of their operations without the workers' consent were forced to back off by the Commissioner of Labour, who imposed compensation amounts equivalent to several yearly wages per worker. The review process generally took several years, during which firms had to keep paying the wage bill. As a result, in 1991 (the last year for which data are available), only 65 firms used this institutional mechanism to set compensation packages. Reallocation to other branches or production lines and natural attrition were preferred as devices to scale employment down when severance pay was out of reach.

As regards wage bargaining, there are two different institutional arrangements. On the one hand, 37 tripartite Wage Boards set minimum wages for each skill level in all sectors of the economy. Delegates to these Boards are chosen from among active sectoral guilds of private employers and major sectoral trade unions by the Commissioner of Labour. Once these delegates reach an agreement, it becomes enforceable for all firms in the corresponding sector, including state corporations. In other words, nation-wide minimum wages arise from tripartite negotiation. Although these wages are relatively low (see section 3.a), they are used as a reference to adjust the wages of most workers.

On the other hand, firms and unions may have their own collective bargaining agreements, which usually set wages above the Boards' minima in exchange for labor peace. A typical example is the agreement between some fifty firms represented by the Employers' Federation of Ceylon and the Ceylon Mercantile Workers Union. This agreement includes the "2 for 1" indexation clause, which means that wages have to increase by 2 rupees for each additional point of the cost-of-living index. It is only very recently that productivity has started to be considered as a determinant of wage increases in Sri Lankan collective bargaining.

c) The Non-Regulated Sector

The rest of the Sri Lankan workers (slightly fewer than 4 million people) are in the non-regulated sector. The extent of the latter is not surprising in a country where more than 70% of the population lives in rural areas. However, the non-regulated sector also includes some urban private firms. Some

of them are not covered by specific pieces of legislation concerning firms above some size threshold only. For instance, firms with fewer than three employees do not have to pay social security contributions. Similarly, the TWA does not apply to firms with fewer than 15 workers. Some other firms belong to the non-regulated sector just because they do not comply with the legislation.[4]

More interestingly, there are firms which get an implicit "waiver" from the Commissioner of Labour. This is what happens in the Export Processing Zones (EPZ), where many foreign companies use the threat of discontinuing their activities in the country to get a more flexible application of labor legislation. In fact, given that petitions to the Commissioner of Labour are usually made by union leaders on behalf of workers, these firms use the security controls at the entrance of the EPZ as a device to get rid of union activists. Consequently, EPZ firms are union free, in sharp contrast with most firms in the regulated sector.

3. Wage Level and Flexibility

Pervasive labor market regulation raises the issue whether high unemployment in Sri Lanka results from policy-induced rigidities. It has indeed been argued that labor costs are excessively high by international standards, that nominal wages are fully indexed to the cost of living, that their adjustment is inflationary because it leads to a wage push, and that there is a leadership of public sector wages for a significant component of wage earners (see for instance Kelly, 1992). This section aims at assessing these hypotheses.

a) Wage and Non-Wage Costs

There is anecdotal evidence that most private firms in the regulated sector pay above the minima set by the Wage Boards, except for trainees. Interviews of firm managers by the author and other World Bank staff during the summer of 1993, within the context of a Private Sector Assessment (World Bank, 1993b), suggest that the average earnings is about two dollars a day. Roughly the same figure emerges

[4] Non-compliance does not seem to be achieved by being on the fringe of the law (e.g. by hiring casual workers rather than permanent ones), but rather by being out of it.

from household surveys (Kelly, 1993b), as well as from the international comparison carried out by the Foreign Investment Advisory Service of the Multilateral Investment Guarantee Agency. This comparison is reported in Table 1, column (b), which shows that the average wage in Sri Lanka is similar to those in other highly regulated South Asian countries, but lower than those in much more flexible East Asian countries (the extent of regulation is summarized in column (a)).

(Insert Table 1)

Monthly wages are only one component of labor costs. For a sound international comparison, it is also necessary to take into account labor productivity, working time and non-wage costs. Labor productivity can be proxied by the mean years of schooling of adult population. This variable, reported in column (c), shows that education levels are much higher in Sri Lanka than in other South Asian countries, and that they even exceed those of many neighboring East Asian countries. It could be argued that schooling is not the same as human capital, which is true, but schooling is still highly relevant for both the work ethic and the ability to acquire new skills.

Labor productivity can also be assessed by comparing across countries the value added per worker in manufacturing. As for the mean years of schooling, this is only a proxy, to the extent that the sectoral structure of manufacturing output, hence the average capital-to-labor ratio, varies from country to country. Column (d) shows that the value added per worker in manufacturing is much higher in Sri Lanka than in Bangladesh or India. The figure is similar to that of Indonesia, but lower than those of other East Asian countries and Pakistan.

The international comparison is less favorable to Sri Lanka as regards working time. The number of days of annual leave does not exhibit a great variance across the countries in Table 1 (see column (e)), but Sri Lankan workers enjoy a much higher number of paid public holidays. This is because of the full-moon Poya Days observed by the Buddhist population. The working time gap is not evident in household survey data though. According to column (g) in Table 1, the average number of hours of work per week in manufacturing is roughly the same in Sri Lanka as in the reported East Asian countries.[5]

Finally, non-wage costs are usually associated with social security contributions. In Sri Lanka, contributions by employers and employees to both the Employees Provident Fund (EPF) and the

[5] Accordingly, hours-based under-employment does not appear to be an acute problem (see Bowen, 1990). But note that the high number of working hours may be a reaction to the TWA, which makes hiring less attractive compared to paying overtime.

Table 1

LABOR COSTS

	(a) Number of ILO conventions ratified	(b) Monthly wage of factory workers (U.S.$)	(c) Mean years of schooling (ages 25 and over)	(d) Monthly value added per worker in manuf. (U.S.$)	(e) Annual leave in manufacturing (days)	(f) Paid public holidays in manufacturing	(g) Hours of work per week in manufacturing	(h) Social security contributions (% of wage)	(i) Funding of the old-age benefit system
Bangladesh	31	40.2	2.0	168.4	12	10	n.a.	0.0	No benefits
India	36	66.1	2.2	212.2	12	8	46.2	24.6	Funded
Pakistan	30	54.1	1.7	544.3	14	10	n.a.	12.0	Pay-as-you-go
SRI LANKA	29	40.3	5.5	296.5	14	22	49.5	23.0	Funded
Indonesia	10	39.6	3.1	320.5	12	11	n.a.	10.0	Funded
Malaysia	23	276.8	4.0	864.3	9	0	n.a.	22.3	Funded
Phillipines	23	82.8	6.6	500.5	15	11	48.8	11.9	Pay-as-you-go
Thailand	11	133.7	3.5	n.a.	6	13	50.5	3.2	No benefits

Sources: (a): World Labour Report, International Labor Office, as of 1992. (b): World Bank, Foreign Investment Advisory Service, MIGA, as of 1991. (c): Human Development Report, United Nations Development Programme, as of 1980. (d): Industrial Statistics Yearbook, United Nations, as of 1986-88. (e) and (f): Conditions of Work: a Cumulative Digest, International Labor Office, as of 1983, and S.R. de Silva (1990): Leave, Holidays and Overtime in the Private Sector, The Employers' Federation of Ceylon. Public holidays in Sri Lanka include 9 mandatory days, 3 customary full days, 2 customary half days and an average of 9 full-moon Poya days. (g): Yearbook of Labour Statistics, International Labor Office, figures are averages for 1986-90. (h) and (i): Social Security Programs Throughout the World, U.S. Social Security Administration, as of 1991.

Employees Trust Fund (ETF) amount to 23% of wages. This figure is relatively high by international standards (see column (h) in Table 1). However, old-age benefits are supposed to be equal to the capitalized value of social security contributions. The latter can thus be perceived as a partial substitute for current wage earnings.[6] This is not the case in pay-as-you-go systems, where contributions represent a tax on labor (see column (i) in Table 1).

b) Labor Conflicts

Although labor costs do not appear to be excessive, private firms could be reluctant to hire because of highly disruptive labor relations. Aggressive unions and wildcat strikes would indeed lower labor demand, even at moderate labor costs. Yet, the labor market is relatively peaceful in Sri Lanka. As shown in Figure 1, there was a gradual weakening of the labor movement during the last decade. The number of unions registered with the Commissioner of Labour has been declining since 1977. The number of union members, which has a larger variance because of arrears in the payment of dues, started declining in 1983.[7]

(Insert Figure 1)

The main reason for this weakening seems to be political. Many unions are close to left-wing parties, and particularly to the Sri Lankan Freedom Party (SLFP), under whose government most nationalizations took place. The SLFP was defeated in 1977 and in subsequent elections. In addition, it has greatly suffered from the collapse of communism, and so did the labor movement. The ruling United National Party (UNP) has tried to encourage trade unions under its influence, which are more moderate than the left-wing ones. However, the workers' support of these unions has been partly eroded by the privatization process of the last three years.

Whatever the cause for the unions' weakening, firms in the private sector do not face significant costs in terms of labor conflicts. At a first glance, Figure 2, which reports the number of strikes per

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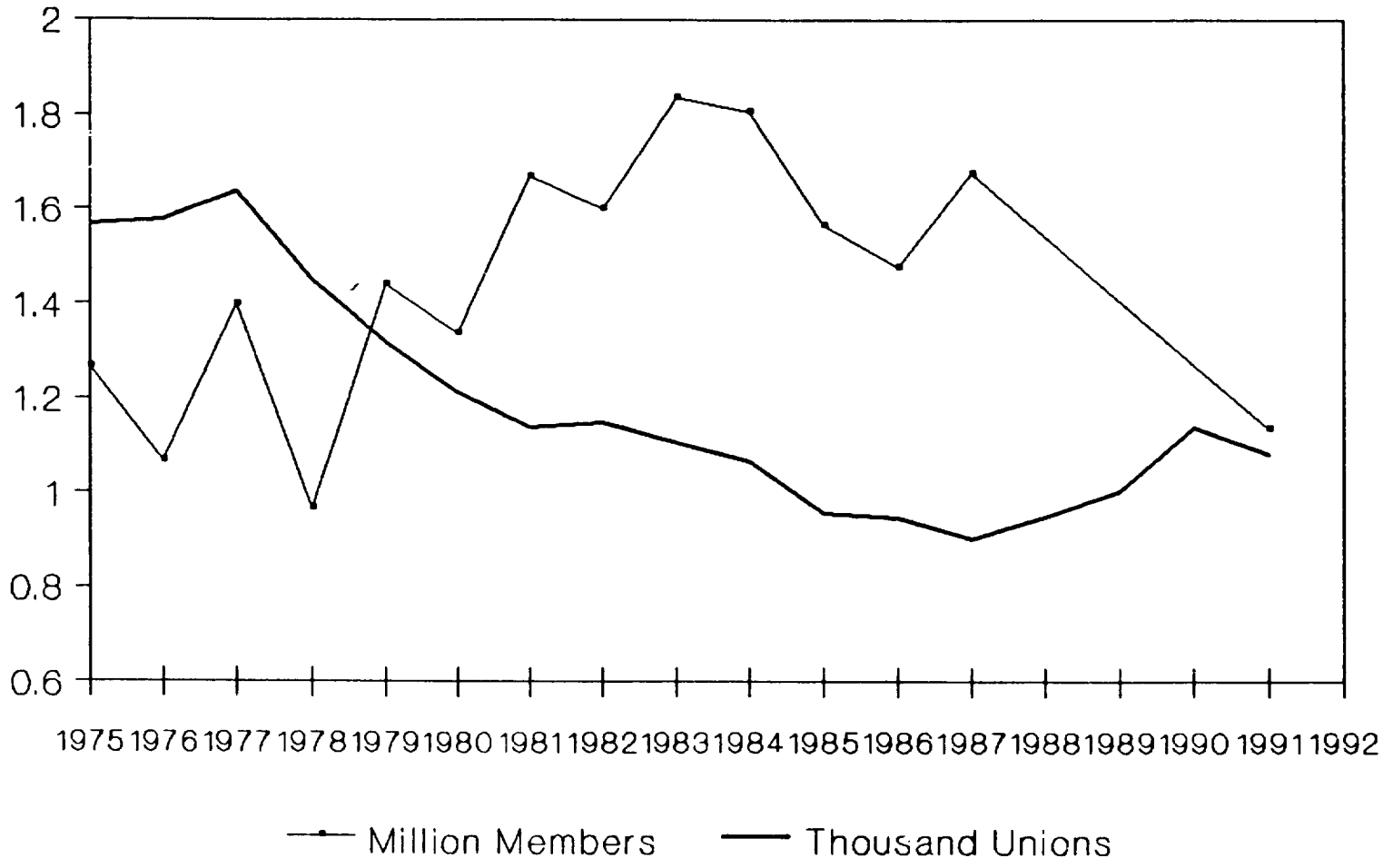
[6] It must be noted, however, that there was a recent attempt to switch to a pay-as-you-go system in Sri Lanka. The attempt was unsuccessful, but it might have had an impact on expectations. If employees do not expect to recover the contributions, then the latter do not represent a delayed payment anymore, no matter what today's law states.

[7] Figures in the early 1990s correspond to a membership rate of about 20%, relative to total employment, or about 60% relative to employment in tea plantations and the regulated sector.

Figure 1

UNION STRENGTH



Source: Department of Labor

year, may suggest the opposite. However, this apparent contradiction is explained by the fact that strikes are a frequent occurrence of labor relations in tea plantations. The gap between the two lines in Figure 2 shows that the number of labor conflicts in the private sector is extremely moderate. In fact, less than 0.5% of all private sector workers went on strike in any recent year.[8]

(Insert Figure 2)

c) Wage Flexibility

Even if labor costs are not too high and labor conflicts are not too frequent, private firms could still be unable to adjust wages when facing unexpected shocks. Minimum wages set by Wage Boards, or credible strike threats by unions, could indeed lead to real wage rigidity. The flexibility issue can be addressed by using time series for the average nominal wage, the consumer price index and a selected monetary policy instrument, such as the money supply or the exchange rate. But before turning to the analysis, it is worth discussing what the data should look like depending on whether real wages are rigid or flexible.

Three stylized facts characterize a "rigid" economy. First, nominal wages are indexed to consumer prices, with an indexation coefficient close to 100%. Indeed, if the indexation coefficient was lower, then there would always be room to reduce real wages in an inflationary economy. Second, wage increases lead to a cost push, so that they reinforce inflation. If firms could not pass higher wages into prices, then they would not be able to afford full indexation for long periods of time. And third, the depreciation of the domestic currency aims at preserving the country's competitiveness. If this was not the case, then firms in the tradeable sector would eventually be squeezed by the wage-price spiral.

The stylized facts are at odds in a "flexible" economy. First, there is less than full indexation of nominal wages to the consumer price index. If wage increases always matched price increases in the short run, then they would not be reflecting any labor market specific shocks. Second, inflation rates are closely related to monetary policy, not to production costs. If for any reason nominal wages increased too much, then competition at home and abroad would put the burden of adjustment on profit margins.

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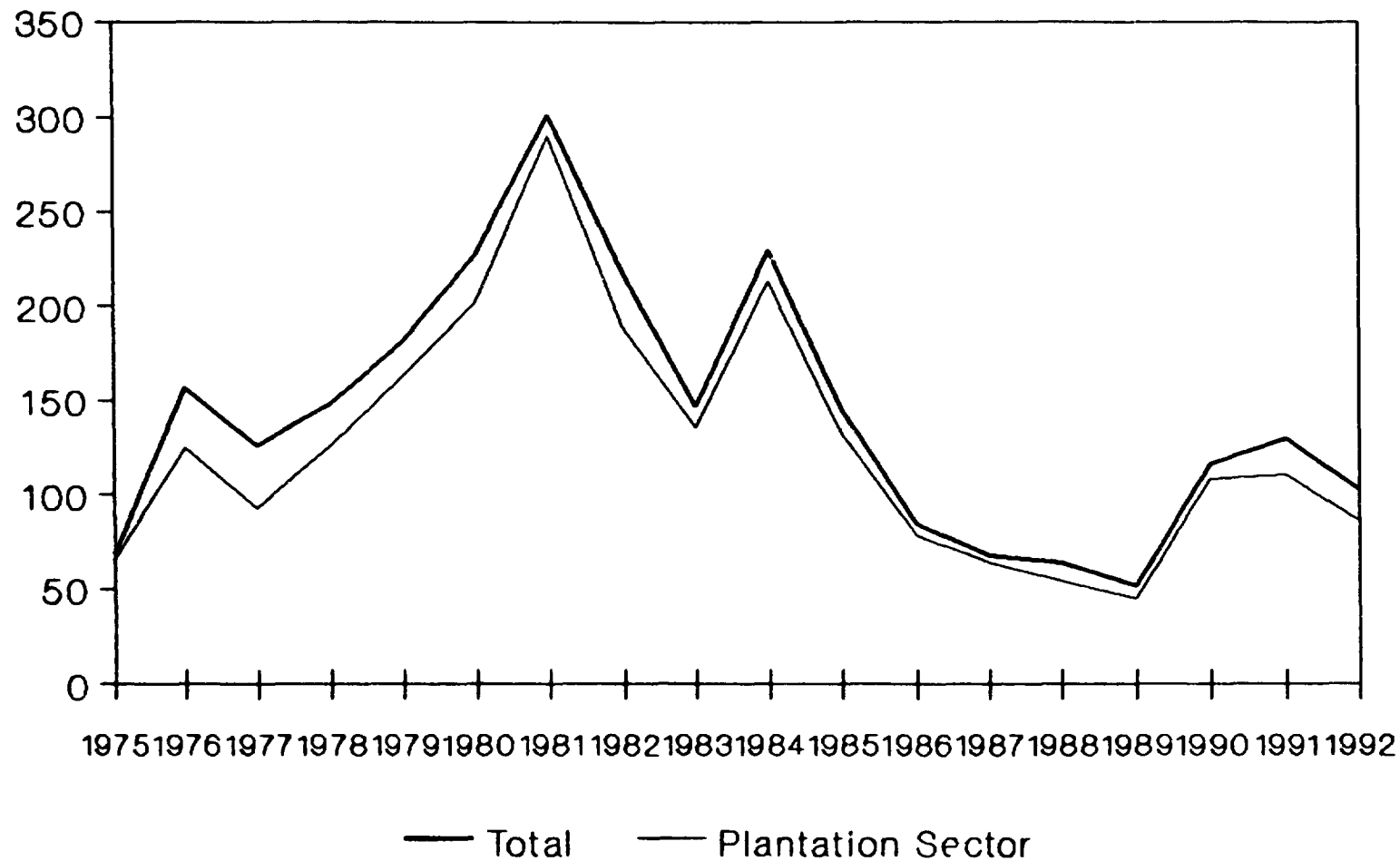
[8] This assessment is consistent with firm survey findings, according to which labor relations represent a mild constraint, the seventh less severe out of a list of 33 potential constraints to private sector development (World Bank, 1993b).

Figure 2

NUMBER OF STRIKES PER YEAR



Source: Department of Labor

And third, monetary policy is exogenous, in the sense that it is not a mere adjustment of the authorities to a wage-price spiral beyond their control.

The reported stylized facts correspond to very unrealistic pure cases. Actual economies lie somewhere between these two extremes. The interesting thing is that Sri Lanka is much closer to the "flexible" case than it is to the "rigid" case. This is shown by Table 2, which reports the results of a one-lag vector auto-regression on quarterly data for period 1987-1993. The endogenous variables are the percent variation of the Colombo consumers' price index, the percent variation of the average minima set by Wage Boards, and the percent depreciation of the rupee against the dollar.[9] The exogenous variables are the annual growth rate of real output and four dummies which account for two jumps in economic policy (a large devaluation in 1989 and a significant adjustment of public sector wages in 1993) and two inflation outliers.

(Insert Table 2)

According to the results in Table 2, the inflation rate in quarter t reacts to the depreciation rate in quarter t-1 (the corresponding coefficient, equal to 0.247, is statistically significant), but it is not sensitive at all to wage increases in t-1. Inflation is thus associated with monetary policy, not with cost push. Similarly, wage increases appear to be indexed to the inflation rate in t-1, but the indexation coefficient (0.872) is less than one.[10] Estimates to be discussed in section 4.d, which are based on panel data for wage increases at the sectoral level and which further control for the unemployment rate, suggest that the indexation coefficient is even lower than indicated in Table 2 (possibly around 0.7). Finally, the depreciation rate in t aims at partially offsetting inflation and depreciation in t-1 (the corresponding coefficients are -0.330 and -0.170), not at preserving competitiveness. Therefore, monetary policy appears to be exogenous, rather than accommodating.

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[9] Using the percent variation of money supply (M2) instead of the depreciation rate greatly reduces the fit of the model, which is not surprising in a context of managed float. Intervention in the foreign exchange market implies indeed that money supply is not controlled by the government anymore.

[10] This result is consistent with the stagnation (or even drop) of real wages in the last decade.

Table 2

WAGE FLEXIBILITY

(Based on quarterly data)

Endogenous variable in t	Inflation rate in t-1	Wage increase in t-1	Depreciation rate in t-1	$\bar{R}^2$
Inflation rate (in %), based on Colombo CPI	-0.112 (-0.639)	-0.043 (-0.307)	0.247 * (3.047)	0.534
Wage increase (in %), based on Wage Boards	0.872 * (3.951)	0.083 (0.474)	-0.112 (-1.102)	0.642
Depreciation rate (in %), based on Rupees/Dollar	-0.330 * (-1.859)	0.140 (0.996)	-0.170 * (-2.069)	0.875

Note: Data are from the Monthly Bulletin, Central Bank of Sri Lanka, Colombo, many issues. Because of data availability, the sample has 24 observations, from 1987.2 to 1993.1. Coefficients are from a vector auto-regression with one lag, controlling for the annual growth rate of GDP. Dummies were used for the large devaluation in the third quarter of 1989, the wage increase in the first quarter of 1993, and two inflation ouliers (1988.1 and 1990.1). t-statistics are shown in parenthesis. Significant coefficients at the 5% level are indicated by one asterisk.

d) Government Leadership

Private sector wages could be rigid not because of indexation to the consumer price index, but because of indexation to government wages. If this was so, labor costs would be driven away from their fundamentals by wage leadership. This possibility is analyzed in Table 3, which presents the correlation coefficient between annual wage increases in the private sector and wage increases in government, both in the same year and with a one-year lag, over period 1980-1992. For private sector wages, seven variables were considered. Three of them are the averages of minima set by Wage Boards for agriculture, manufacturing and services, so that they correspond to the regulated sector. The remaining four are the sectoral averages of actual wages in non-regulated tea, paddy and rubber plantations, as well as in non-regulated construction.[11]

(Insert Table 3)

According to Table 3, there is no clear evidence of a wage leadership by the government. Wage increases in regulated manufacturing activities and in the four non-regulated activities exhibit no significant correlation with wage increases in the government, neither in the same year nor with a one-year lag. The correlation coefficient is positive in the case of regulated agriculture and service activities, but this should come as no surprise given that the corresponding Wage Boards include many publicly-owned corporations. Therefore, it cannot be concluded from Table 3 that bargaining power by civil servants is a source of rigidity for private sector wages.

4. The Nature of Unemployment

The fact that wages are not excessively high nor particularly rigid makes it difficult to account for high unemployment based on a disequilibrium between supply and demand for labor at the aggregate

[11] See Korale (1987, chapter 3) for a description of the data sources.

Table 3

INDEXATION TO GOVERNMENT WAGES

Sectoral wage increases (%)	Correlation coefficient with wage increases (%) in government: in the same year	the year before
Agriculture (Wage Boards)	0.635 *	-0.231
Manufacturing (Wage Boards)	-0.462	0.166
Services (Wage Boards)	0.479 *	-0.298
Tea (non-regulated sector)	-0.244	-0.460
Rubber (non-regulated)	0.094	-0.109
Paddy (non-regulated)	0.180	-0.132
Construction (non-regulated)	0.072	0.178

Source: Based on data from the Statistical Abstract of the Democratic Socialist Republic of Sri Lanka, Department of Census and Statistics, Colombo, for period 1980-1992. Significant coefficients at the 5% level are indicated by one asterisk.

level.[12] It rather suggests that the problem arises from a mismatch between the structures of labor supply and labor demand. Actually, the two most popular explanations for high unemployment in Sri Lanka focus on some heterogeneity of either workers or jobs or both. This section critically reviews these explanations.

a) Skills Mismatch

Although Sri Lankan workers are highly educated compared to other workers in the region, there is a widespread concern that the education system, with its emphasis on white collar professions and public sector careers, does not fit the needs of the private sector. Put differently, the Sri Lankan labor force may be highly educated, but not particularly skilled. Moreover, students are taught in Sinhalese or Tamil, whereas private firms prefer workers who are fluent in English. Since the unemployment rate is much higher for youth than for other groups, the mismatch between available and required skills has been pointed out as the main cause for high unemployment.

This explanation, first stated in an ILO study (International Labor Office, 1971), has been very influential in terms of labor market policies. At present, government agencies run more than three thousand programs aimed at upgrading skills. These programs include in-service training; however, in 1992, 23% of the unemployed reported having taken some kind of vocational training (Kelly, 1993c). Altogether, training expenses by these agencies amount to more than 1% of GDP (Kelly, 1992). It even appears that further steps will be taken in the same direction, by creating a Skills Development Fund whose annual budget would be in the order of an additional 0.2 to 0.3% of GDP. Given that training is supposed to lead to positive externalities, the possibility of financing the Fund by a levy on firms, such as a payroll tax, is being considered (World Bank, 1993a).

The skills mismatch hypothesis appears to be relevant in the case of college graduates. Private sector firms complain about the lack of good quality high-level staff, such as managers and engineers. This shortage is reported as the sixth more severe problem they face, out of a list of 33 potential constraints (World Bank, 1993b). There is also anecdotal evidence that private firms fear the alleged

[12] It could be argued that although wages are flexible, they are not flexible enough to cope with an increase by nearly one half of female participation rates, as the one that took place between 1980 and 1990. If this hypothesis was correct, then unemployment would be the temporary outcome of wage rigidity, and it should be gradually absorbed as female participation rates stabilize. However, higher participation has been partially offset by migration to Gulf countries, so that labor supply has increased by only 2.2% per year over period 1980-1990 (see Alailima, 1991).

anti-business bias of college education. They also reject its emphasis on liberal arts, which became evident in February 1992, when the government opened a register for unemployed graduates, and 12,000 people showed up; of these, more than 60% turned out to be liberal arts graduates (Kelly, 1993a).

However, by 1990 less than 18% of the unemployed had "A" levels and above, i.e. had completed high school. Therefore, the problems faced by college graduates are not necessarily those of the bulk of the unemployed. In fact, private sector firms do not view the shortage of qualified labor as a major obstacle to their development (World Bank, 1993b).[13] In a recent firm survey (Kelly and Culler, 1990), 62% of the interviewed managers said that workers knew how to do their jobs (compared to 30% who disagreed), 56% said that they were good (whereas 18% said that they were not), and 50% acknowledged that there were plenty of good workers available (while 44% disagreed).

Studies dealing specifically with the role of education in explaining high unemployment do not support the skills mismatch hypothesis either. Gunatilleke (1989) compared the educational level of entrants into employment to the output of the educational system, and concluded that there was no significant difference between the two.[14] A similar conclusion was reached by Dickens and Lang (1991), who showed that once sex, sector and age are controlled for, the relation between education and unemployment disappears for urban youth and is significantly weakened for rural youth. In other words, Sri Lanka appears to have youth unemployment, rather than educated youth unemployment. If this is so, then it is difficult to blame education for unemployment.

On the other hand, government training programs do not seem to be well geared to the needs of the private sector. Managers usually complain that these programs are not updated, and that the selection of the trainees is subject to politics and patronage, whereas they acknowledge that Sri Lankan workers learn fast. Not surprisingly, 78% of the companies surveyed by Kelly and Culler (1990) provided special training which was not part of the regular job. Two out of three agreed with the following statement: "When hiring a new employee I don't really want a worker who is already trained. Just give me someone who is motivated and disciplined and I'll teach him what I want him to know". Finally, there appeared to be no noticeable skill gap between already trained workers and other workers, since 29% of

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[13] Complains refer to shortages for very specific skills, such as gem cutting and masonry (because of migration to Gulf countries).

[14] Gunatilleke did not exactly deal with entrants, but rather with the net change in employment, i.e. the difference between new employment and retirement.

the companies ranked the former as being better or much better than the latter, but exactly the same percentage said the opposite.

b) Affording Unemployment

In the skills mismatch hypothesis, unemployment is involuntary: the unemployed are willing to work at the prevailing wage rate, but no firm makes them an offer. This is at odds with either job search or queuing hypotheses, in which unemployment is voluntary: the unemployed face job offers, but they rationally prefer not to take them and wait for better ones.[15] A necessary condition for unemployment to be voluntary is that the unemployed must be wealthy enough to afford waiting. Involuntary unemployment, by contrast, should be associated with significant dis-saving when the unemployed have some cumulated wealth, or with poverty when they have not.

The long unemployment spells in Sri Lanka make the wealth issue a highly relevant one. In the early 1980s, the median unemployed person had indeed been unemployed for about 15 months, and more than one in ten had been unemployed for more than four years. How did all they finance consumption? Using household survey data for 1985-86, Bowen (1990) showed that 87.2% of the unemployed males and 96.2% of the unemployed females received family assistance. Government assistance, by contrast, was almost insignificant, reaching only 1.5% of the unemployed of both sexes. Dis-saving was relevant for just 5.2% of the unemployed males, and irrelevant for unemployed females.

These findings, together with the fact that two thirds of the unemployed never had a job, suggest that most of the jobless are the children of middle- or upper-income families. Figure 3, which reports the unemployment rate as a function of monthly family incomes, provides support to this hypothesis.[16] The distribution in Figure 3 is bi-modal, with a high unemployment rate at the lowest income levels, and a much higher one at high income levels. The first mode probably reflects involuntary unemployment, with low family income being the result of a jobless head of household. The second one, to the contrary,

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[15] Note that voluntary unemployment is not incompatible with legitimate bitterness by the unemployed about their fate. Even if searching or queuing for a good job is the best choice ex-ante, the ex-post outcome may be extremely disappointing. This is what happens when no offer for a good job is received after several years of either active searching or patient queuing.

[16] The Figure is based on data by Alailima (1991). It is worth mentioning that the data show a similar pattern for both urban and rural areas.

is likely to reflect a voluntary choice, with the unemployment of young household members being afforded by high family income.[17]

(Insert Figure 3)

Studies on poverty in Sri Lanka also yield a picture which is consistent with voluntary unemployment. Given the high unemployment rate and the length of unemployment spells, if the bulk of unemployment was involuntary, then one should expect a strong association between poverty and joblessness. The labor market characteristics of the heads of poor households indicate that this is not the case: inadequate remuneration appears to be a more important factor than unemployment in explaining poverty (The World Bank, 1990, 1992). In other words, poverty in Sri Lanka is not so much the consequence of unemployment as it is of low wages.

c) Government Hiring

Dickens and Lang (1991) blame unemployment on over hiring practices by the government. Public sector jobs are usually characterized by more security, higher benefits, lower effort and more prestige than their private sector counterparts. Thus, unemployment could be generated by queuing for government jobs. The reason for the unemployed not to take other employment while queuing would be a perceived or real government preference for hiring the unemployed. Dickens and Lang claim that Sri Lankan government jobs are created with the deliberate purpose of alleviating the unemployment problem. Under these circumstances, it would not be surprising that the unemployed get priority when filling the vacancies.

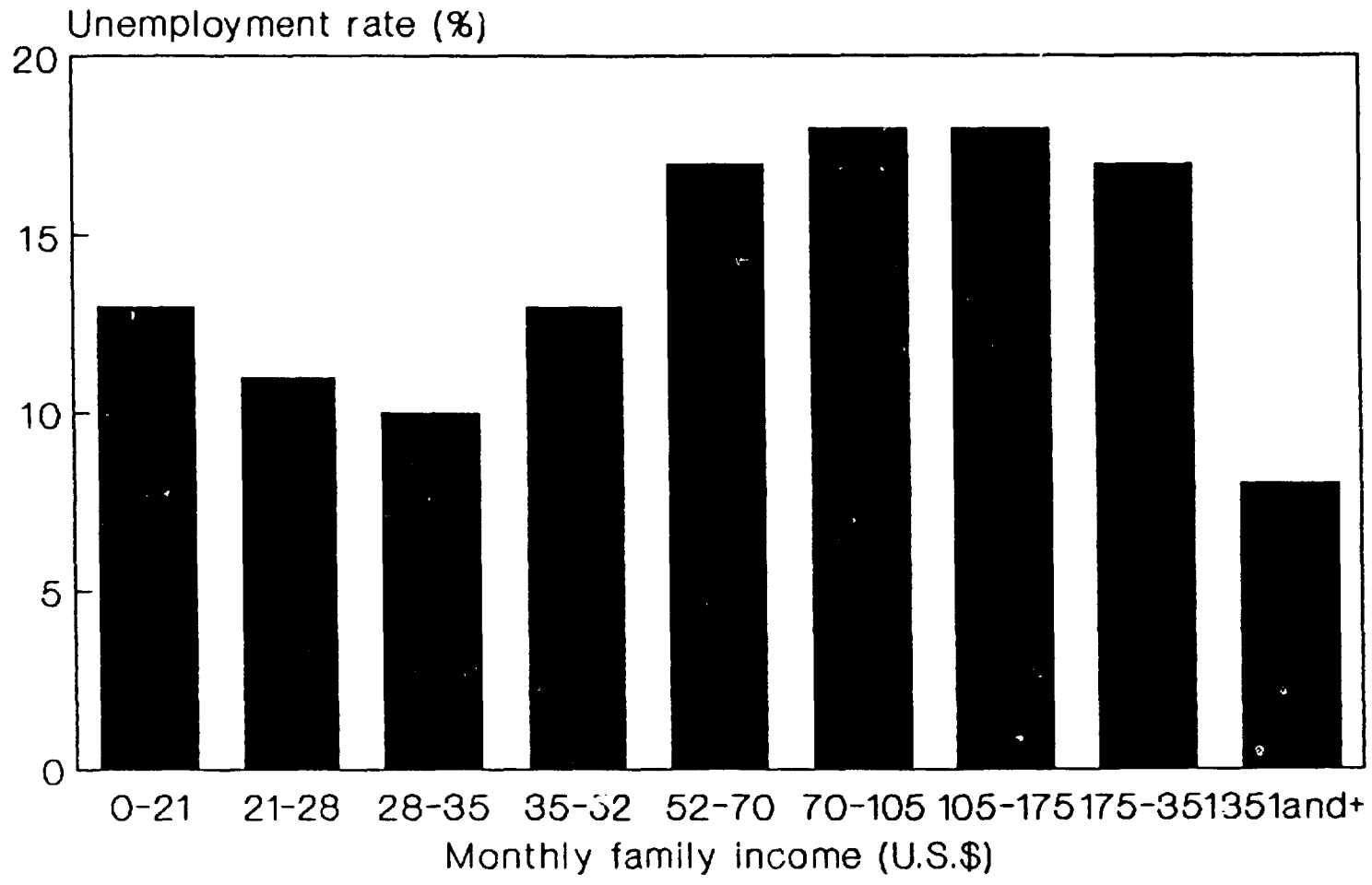
According to Alailima (1991), this is not so anymore. Government recruitment is done entirely on the basis of the aggregate score obtained at a written examination, with no additional consideration given to prior experience, employment or unemployment. Yet the above mentioned register of unemployed graduates tends to prove the opposite. Indeed, the government referred 5,257 of the registered unemployed graduates to manpower placement companies. After six months, only 3% had actually been placed in private sector firms. Subsequently, the government announced that those who

[17] A similar conclusion was reached by Glewwe (1987), using household survey data for 1969-70.

Figure 3

UNEMPLOYMENT RATE BY INCOME LEVEL

From household surveys, in 1986-87



Source: Based on Alailima (1991)

could not be placed in the private sector would be hired as teachers (Kelly, 1993a). That process is ongoing.

However, as for the skills mismatch explanation, the hypothesis that unemployment is due to hiring practices by the government does not account for the bulk of the problem. The register of unemployed graduates, for instance, concerns a few thousand individuals, in a country with almost one million unemployed people. More importantly, the empirical analysis below (section 4.d) shows that although the unemployed do not compete for jobs in the non-regulated sector of the economy, they do compete for jobs in regulated private firms and state corporations. Hence there is active job search by the unemployed, and not just passive queuing for government openings.[18]

d) Job Search

The hypothesis we want to assess is that the unemployed are in search of (rationed) jobs in the regulated sector of the economy, but are not interested by (abundant) jobs in the non-regulated sector. A first element that supports this hypothesis is casual evidence that employment opportunities exist in the non-regulated sector. Several firms in the EPZ located just a few miles out of Colombo report excess demand for labor in the range of many hundred workers each. This is because the wages they pay are not high enough to compensate for the cost and inconvenience of public transportation from and to Colombo. Not surprisingly, these firms are only able to attract young women from the provinces, and only to the extent that lodging is provided.

A more rigorous test of the hypothesis consists of analyzing the responsiveness of sectoral wage increases to the unemployment rate. If the unemployed compete for jobs in the regulated sector of the economy, then wage increases in this sector should be more moderate, other things equal, the higher the unemployment rate. On the other hand, if the unemployed do not compete for jobs in the non-regulated sector, then high unemployment should not restrain wage increases in this sector. Furthermore, since a higher unemployment is associated, other things equal, with lower manpower availability for the non-

[18] Hiring practices may have an impact on the structure of unemployment though. As indicated in section 4.a, private sector firms prefer to hire workers with English proficiency. This preference is not generally due to the requirements of the job. There is anecdotal evidence that it rather operates as a screening device for social background as well as for the quality of formal education. Other things equal, job searchers from outside Colombo tend to be disadvantaged by the language criterion. Therefore, the preference for English proficiency has effects which are similar to those of the preference for short unemployment spells in industrial countries (see Blanchard and Diamond, 1990).

regulated sector, wage increases in this sector could even be an upward function of the unemployment rate.

The test is carried out by pooling cross-section and time-series data. The endogenous variable is the percent annual wage increase in seven activities, three of them regulated and four non-regulated, over period 1980-1992. The activities are the same as in section 3.d (see Table 3). The exogenous variable is the unemployment rate, in percent. Equation (1) in Table 4 uses the contemporary economy-wide unemployment rate for all the seven activities. Equation (2) uses the contemporary urban employment rate for manufacturing and services in the regulated sector, as well as for construction in the non-regulated sector, whereas it uses the contemporary rural unemployment rate for agriculture in the regulated sector, and for tea, paddy and rubber plantations in the non-regulated sector. Both equations control for the contemporary inflation rate, measured as the percent annual change of the Colombo consumers' price index. The estimation allows for a variable slope across sectors in the case of both the inflation rate and the unemployment rate, as well as for a variable intercept.

(Insert Table 4)

According to Table 4, wage increases are indexed to the inflation rate, with an indexation coefficient of about 0.7 within the year (0.687 in equation (1), 0.763 in equation (2)). There is no significant difference in the extent of indexation between the regulated and the non-regulated sectors though (the change in slope from non-regulated to regulated sectors is not statistically significant in either of the two equations). As regards the unemployment rate, if it has any impact on wage increases in the non-regulated sector, it is a positive one. The corresponding coefficient is indeed not different from zero in equation (1), but it is statistically significant (equal to 1.158) in equation (2). The opposite is true for wage increases in the regulated sector. The net coefficient is -1.574 in equation (1) (= 1.346 - 2.920) and -0.371 (= 1.158 - 1.529) in equation (2). The difference between sectors is statistically significant in both cases. Therefore, the data support the hypothesis.

Table 4

REACTION OF WAGE INCREASES TO UNEMPLOYMENT

	Inflation rate		Total unemployment		Sectoral unemplyt.		
Eq.	Non-reg. sectors	Change in slope	Non-reg. sectors	Change in slope	Non-reg. sectors	Change in slope	$\bar{R}^2$
(1)	0.687 *	-0.193	1.346	-2.920 *			0.251
	(1.886)	(-0.354)	(1.209)	(-1.753)			
(2)	0.763 *	-0.589			1.158 *	-1.529 *	0.267
	(2.739)	(-1.442)			(1.938)	(-1.750)	

Note: The endogenous variable is the annual growth rate of nominal wages for seven groups of workers (three of them covered by Wage Boards, four of them belonging to the non-regulated sector), from 1980 to 1992. The sample size is 49. Data are from the Department of Census and Statistics, the Department of Labour and the Central Bank of Sri Lanka. Coefficients are based on ordinary least squares, controlling for a time trend. t-statistics are shown in parenthesis. Significant coefficients at the 5% level are indicated by one asterisk.

5. A Simple Analytical Model

Findings in the previous sections can be summarized by means of a simple analytical model of the Sri Lankan labor market. The fact that the market is segmented implies that at least two sectors (regulated and non-regulated) have to be considered for the model to be meaningful.[19] The flexibility of wages, in turn, suggests that it is better not to assume any exogenous constraint on wage setting by firms in the regulated sector. The voluntary nature of unemployment, finally, means that policy implications depend crucially on the way the sectoral job heterogeneity (and more specifically, the wage gap between sectors) is modelled.

a) Efficiency Wages

In the development literature, many reasons have been put forward to explain the wage gap between the modern (or formal) and the traditional (or informal) sectors of the economy. One of the most appealing explanations is related to efficiency considerations. Modern activities are usually characterized by tasks which are more sophisticated and more difficult to monitor than traditional activities. High wages can therefore be used to attract good workers and to reduce their turnover when labor quality cannot be directly observed. High wages can also be used to provide a disincentive to shirking, when the only jobs that are immediately available to a worker who is fired (i.e. jobs in the traditional sector) are characterized by low wages.

In Sri Lanka, there is anecdotal evidence that private firms engage in a "gift exchange" with their workers in order to retain them and to get from them the required effort level. Thus, wages significantly higher than the minima set by Wage Boards, a personal knowledge of most of these workers and their families, gifts on the occasion of weddings and other celebrations, free meals and a flexible leave policy appear to be standard in labor relations. On the other hand, high unemployment rates and long unemployment spells are likely to act as a powerful deterrent for shirking. However, the approach is different in some of the EPZ firms, where the required effort level is extracted by means of tough discipline and a close monitoring of the tasks performed by workers.

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[19] Since there is almost no labor mobility between tea estates and the rest of the economy, the plantation sector can be treated separately without any loss of generality.

A simple way to model these efficiency considerations is the one by Shapiro and Stiglitz (1984) and Bulow and Summers (1986), who focus on the combination of high wages and a credible threat of being fired if caught shirking as a discipline device. Their model abstracts from other consequences of high wages, such as attracting better workers, reducing turnover, and improving morale. It also abstracts from any bargaining power by insiders in the wage setting process. While these simplifications allow analytical tractability, they do not seem excessively unrealistic in the case of Sri Lanka. Particularly, because of the labor movement weakening, Sri Lankan trade unions seem to be more relevant in terms of enforcing labor regulations (such as the IDA and the TWA) than in terms of negotiating wages.

b) Workers' Decisions

Assume firms in the non-regulated sector (N, hereafter) do not face any cost in extracting the required effort level (say, e) from their workers, either because the tasks are not too sophisticated, or because these firms can resort to disciplinary methods which not available to regulated firms. Therefore, the effort level is e whatever the wage level W_N. In the regulated sector (R), by contrast, a minimum wage W_R is needed to induce workers to provide the effort level e. For simplicity, it is assumed that workers provide no effort at all when wages are below W_R.

How is this critical wage level determined? If wages were exactly equal to W_R, then workers would be indifferent between providing the effort e or no effort at all. In the second case, they would not experience any disutility from working, but they would face the risk of being fired for disciplinary reasons. Note that for the firing threat to operate as an effort incentive, the utility of being unemployed has to be lower than the utility of being employed in sector R. Note also that in a context of voluntary unemployment, the utility of being unemployed is the same as the utility of being employed in sector N, where jobs are not rationed.

The discussion in the above paragraph allows writing the *no-shirking condition* as in equation (3). The left-hand side of this equation represents the expected utility of a hard-working employee in sector R. Assuming no risk aversion, this expected utility is a weighted average of the utility of being employed in sector R and the utility of being unemployed (or, equivalently, of being employed in sector N) with weights are 1-r and r, where r represents the probability of being fired for non-disciplinary reasons. Given that sector R is subject to the TWA, this probability is very small ($r \approx 0$). For simplicity, utility is supposed to be proportional to the difference between income and effort level.

$$(1-r)(W_R-e) + r(W_N-e) = (1-f)(1-r)W_R + [1 - (1-f)(1-r)](W_N-e) \qquad (3)$$

The right-hand side of equation (3), in turn, represents the utility of a shirking employee in sector R. Now, the probability of keeping the job is lower than in the former paragraph, because in addition to facing the probability r of being fired for non-disciplinary reasons, the shirking employee faces the probability f of being fired for disciplinary reasons. In Sri Lanka, the IDA does not put excessive restrictions on disciplinary firing, so that it can be accepted that f is strictly positive. The counterpart of the lower probability of keeping the job is a higher utility from being employed in sector R, since the wage is still W_R but the effort level is zero instead of e.

Equation (3) yields:

$$W_R = W_N + \frac{1-f}{f}.e \qquad (4)$$

The sectoral wage gap thus depends on the probability f of being fired for disciplinary reasons when shirking. Since monitoring is never perfect ($f < 1$), the wage gap is strictly positive. This gap is a downward function of f, but it does not depend on the probability r of facing retrenchment. Therefore, an increase in r such as the one that would result from repealing the TWA should not affect the sectoral wage gap.

The hypothesis that unemployment is voluntary implies that the utility of being employed in sector N, where jobs are not rationed, is equal to the utility of being unemployed and in search of a sector R job.[20] This *arbitrage condition* is represented in equation (5). The left-hand side is the utility of being employed in sector N, which does not depend on any firing probability (neither disciplinary nor non-disciplinary), because dismissed workers can be immediately rehired in this sector. The right-hand side is the utility level associated with job search. For simplicity, it is assumed that the unemployed have to provide no effort and have no income at all. But the utility level is still positive because there is a probability h of getting a job in sector R.

$$W_N - e = h[\ (1-r)(W_R-e) + r(W_N-e)\ ] \qquad (5)$$

[20] It is implicitly assumed that job search is not possible while working in sector N. This may not be a realistic assumption, but it is a standard one in the job search literature.

The term in brackets in the right-hand side of equation (5), which represents the utility of being employed in sector R, is identical to the left-hand side in equation (3).

After replacing (5) into (3), the following expression obtains for the equilibrium level of W_R:

$$W_R = \frac{(1-hf) - (1-f)hr}{(1-h)f}.e \qquad (6)$$

By differentiating equation (6), it can be seen that wages in sector R increase with the probability h of finding a job and decrease with the probabilities f and r of being fired for disciplinary and non-disciplinary reasons respectively.

c) Labor Market Equilibrium

Whereas r and f are exogenous parameters, resulting from labor market regulations, the exit rate out of unemployment h is an endogenous variable, resulting from labor market equilibrium. Let L_R and L_N be employment in the regulated and non-regulated sectors respectively. Without any loss, the following labor demand schedules can be assumed:

$$L_i = 1 - W_i \quad \text{with } i = R,N \qquad (7)$$

After normalizing the labor force to one, the unemployment rate U can be written as:

$$U = 1 - L_R - L_N \qquad (8)$$

In equilibrium, the unemployment rate is constant, which means that the flow out of unemployment to sector R equals the flow out of sector R to unemployment. Given that W_R is set in order to elicit the effort level e, all workers in sector R work hard, and there is no firing for disciplinary reasons. Therefore, the flow out of sector R to unemployment is just equal to rL_R. The flow out of unemployment to sector R, in turn, is equal to hU. Equilibrium thus obtains for:

$$rL_R = hU \qquad (9)$$

Replacing equations (4), (7) and (8) into (9) yields the following expression for the exit rate out of unemployment:

$$h = \frac{f(1-W_R)}{2fW_R - f - (1-f)e}.r \qquad (10)$$

By differentiating equation (10), it can be seen that the hiring rate h increases with the probability r that sector R workers be fired for non-disciplinary reasons, and decreases with both the wage level W_R and the probability f that shirking workers be fired for disciplinary reasons. Note that when this probability is close to zero ($r \approx 0$), as is the case in Sri Lanka, then there is no hiring either ($h \approx 0$). Consequently, the average unemployment spell, which is the inverse of the exit rate h, tends to infinite.[21]

d) Comparative Statics

Equations (6) and (10) represent a system with two unknowns: the wage level in the regulated sector, W_R, and the exit rate out of unemployment, h. This system can be used to analyze the consequences of more flexible labor market policies. Particularly, it can be used to assess the effects of repealing the most controversial piece of labor market legislation in Sri Lanka, namely the TWA. In terms of the model, repealing the TWA is equivalent to increasing the probability r of being fired for non-disciplinary reasons. The effects are analyzed graphically in Figure 4.

(Insert Figure 4)

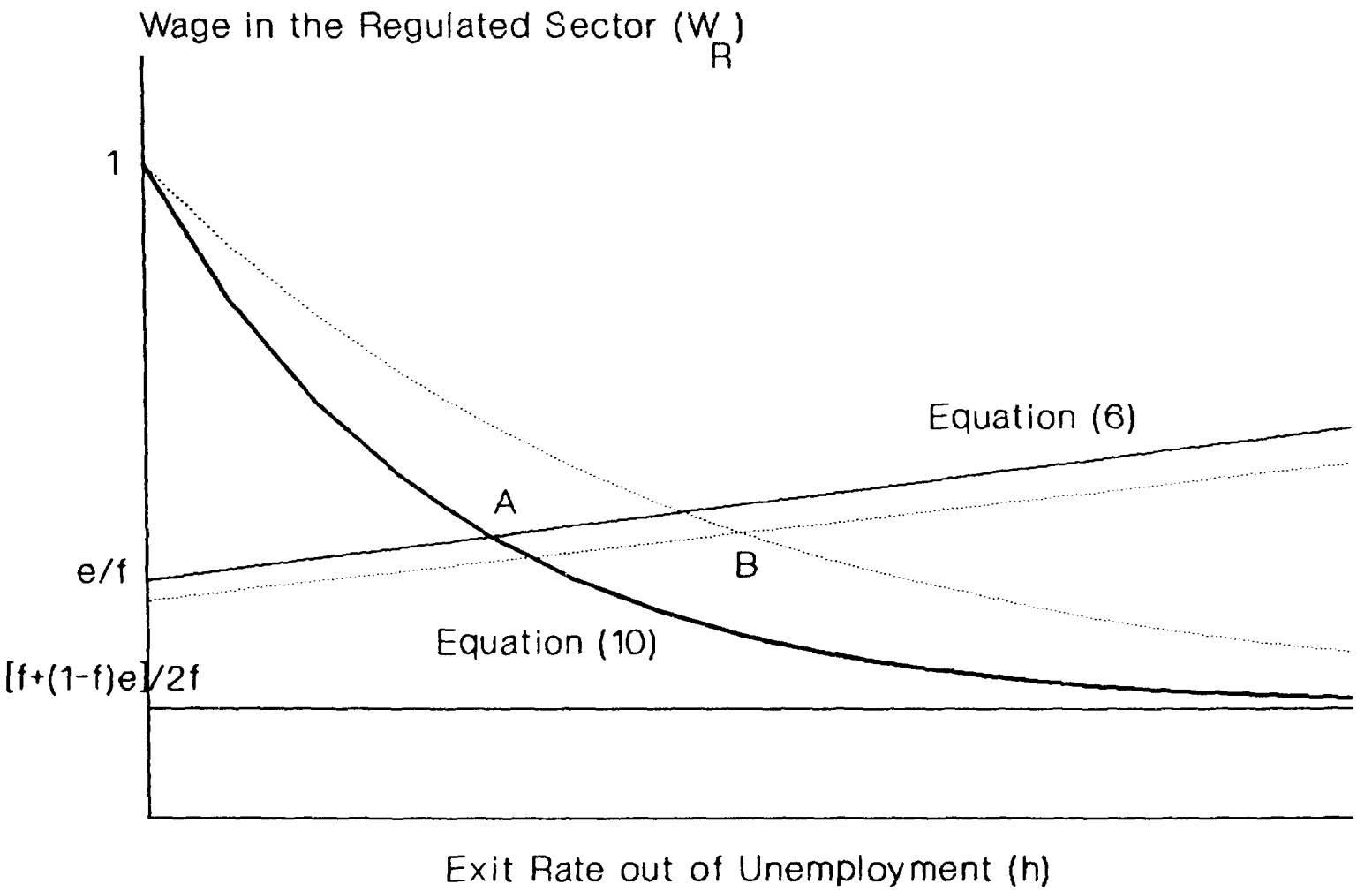
The upward-sloping lines in Figure 4, which correspond to equation (6) in the model, summarize the workers' behavior. The solid upward-sloping line obtains for $r = 0$, so that it depicts the current situation in Sri Lanka. The dotted upward-sloping line obtains for $r > 0$, and reflects what would happen if the TWA were to be repealed. The downward-sloping curves, in turn, correspond to equation (10) and reflect labor market equilibrium, in the sense that they correspond to a constant unemployment rate. As before, the solid line obtains for $r = 0$ and the dotted line for $r > 0$.

Repealing the TWA would thus shift the steady-state from point A to point B in Figure 4. Since both the upward-sloping and the downward-sloping schedules move to the right, the hiring rate h

[21] In a more realistic model, in which some fraction of the workers in sector R would die, retire or quit, the hiring rate would be strictly positive, thus leading to a finite average unemployment spell, even for $r = 0$.

Figure 4

LABOR MARKET EQUILIBRIUM



unambiguously increases. Although the result is a priori ambiguous for the wage level in the regulated sector, it is shown in the Appendix that under the assumptions of the model, W_R increases too. Given that the sectoral wage gap does not depend on r (see equation (4)), the wage level W_N in the non-regulated sector also increases, and so does the unemployment rate U (see equations (7) and (8)). Summing up, repealing the TWA would raise the unemployment rate, but it would also raise the probability for each unemployed person to find a good job.

6. The Policy Implications

Although the Sri Lankan labor market is highly regulated, it would be a mistake to conclude that all of the labor market regulations currently in force are highly distortive. For instance, it appears that in spite of minimum wages set by Wage Boards and of collective bargaining between firms and trade unions, real wages are neither excessively high nor excessively rigid. Similarly, freedom for trade unions does not lead to conflictive labor relations nor to wildcat strikes, except in tea plantations and state corporations, where employment decisions are basically political. However, labor market regulations do have a distortive impact in terms of labor mobility. According to the analysis in this paper, the main obstacle comes from the TWA.

In this sense, it is worth reminding that Sri Lanka is a partially closed economy. Foreign trade barriers started to be reduced in 1977, but there are still many import-competing activities which are much larger than they should be, due to protection. Repealing the TWA would be a necessary step to avoid massive job destruction in these activities, in the event of a further liberalization of foreign trade. Many firms in the protected sectors would have indeed to restructure and shut down some of their product lines. By being prevented to do so, these firms may just go bankrupt, with the subsequent loss of a much larger number of jobs.

Even in the absence of any further trade liberalization, in an efficiency-wage setting like the one described above, removing restrictions on retrenchment would unambiguously increase the turnover rate, with both hiring and firing being more prevalent. Although the unemployment rate would increase in the short run, the average unemployment spell would be shorter. This would help solving the socially explosive problem of youth unemployment. Moreover, in a long-run perspective aggregate employment

should increase. This is because the current costs of retrenchment are a deterrent for investment in labor-intensive projects.

Repealing the TWA would lead to a welfare loss by incumbent workers in the regulated sector, who are precisely the ones organized in trade unions. In addition, there is a legitimate fear that the greater flexibility may be used to get rid of union activists. Since Sri Lankan unions play an important role in the enforcement of labor law, it could be worth addressing this second concern by protecting elected workers' representatives from non-disciplinary firing, as is the case in many Western countries. The welfare loss by incumbent workers is much more difficult to address though. Because of this loss, the removal of the TWA may be out of reach. If this is so, then the set up of limits for severance pay should be considered.[22]

The policy implications of the analysis are different in the case of tea plantations. This is a potentially conflictive sector, as the children of the Indian Tamil workers become adults and face almost no local labor demand. It is clear that the government should not interfere in wage setting by the new private managers, beyond the enforcement of labor standards. But the social and political implications of massive layoffs are unclear. Efforts should be aimed at reallocating workers to the few estates that currently have excess demand for labor, at giving the private sector the long-term horizon required to undertake significant investments in replantation (which increase labor demand both during the replantation process and when the new bushes get into the production stage), and at attracting investment to the tea region under the EPZ regime.

Finally, an in-depth revision of both the on-going and the proposed vocational training programs seems desirable.[23] These programs are highly costly, in a context where the budget deficit is putting a heavy burden on private sector development (World Bank, 1993b). Moreover, they do not reduce unemployment, to the extent that the latter is not due to skills mismatch, nor do they generate the skills the private sector is looking for. A demand-driven vocational training would better achieve the goal of

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[22] A second-best approach may also be appropriate regarding the simplification of labor law in Sri Lanka. The first best would be to replace the many intricate and even contradictory layers of legislation by a much simpler labor code. But this is likely to trigger a national debate on the issue. The collective bargaining agreement between the Employers' Federation of Ceylon and the Ceylon Mercantile Workers Union, which includes the "2 for 1" indexation clause, is seen by many as a model to be replicated. The introduction of this kind of rule in a labor code would threaten one of the strengths of the Sri Lankan labor market, namely the flexibility of real wages.

[23] The comprehensive World Bank/I.D.A. funded General Education Project represents an important step in this direction.

upgrading skills in Sri Lanka. It would also be less subject than the current programs to the interference of politics and patronage.

Appendix

Equations (6) and (10) can be re-written as follows:

$$W_R = F(h,r) \tag{A1}$$

$$h = G(W_R,r) \tag{A2}$$

Let F_h' be the partial derivative of F(.) with respect to h, G_w' the partial derivative of G(.) with respect to W_R, and so on. Differentiating the system represented by equations (A1) and (A2) and solving for dh and dW_R yields

$$dh = \frac{F_r'G_w' + G_r'}{1 - F_h'G_w'}.dr \quad , \quad dW_R = \frac{F_r' + F_h'G_r'}{1 - F_h'G_w'}.dr \tag{A3}$$

where

$$F_h' = \frac{(1-f)(1-r)}{(1-h)^2 f} > 0 \tag{A4}$$

$$F_r' = -\frac{(1-f)h}{(1-h)f}.e < 0 \tag{A5}$$

$$G_w' = \frac{rf[\ (1-f)e - f\ ]}{[\ 2fW_R - f - (1-f)e\ ]^2} < 0 \tag{A6}$$

$$G_r' = \frac{f(1-W_R)}{2fW_R - f - (1-f)e} > 0 \tag{A7}$$

The sign of G_w' may seem a priori ambiguous. However, in equilibrium both L_R and U are positive, so that equations (4), (7) and (8) imply $W_R < 1$ and $2fW_R - f - (1-f)e > 0$; consequently, (1-f)e - f is negative.

By replacing equations (A4) to (A7) into (A3), the following results obtain:

$$\frac{dh}{dr} > 0 \qquad \text{(A8)}$$

$$\begin{aligned} \mathrm{Sgn}\left(\frac{dW_R}{dr}\right) &= \mathrm{Sgn}\{\ (1-r)f(1-W_R) - (1-h)h[\ 2fW_R - f - (1-f)e\ ]\ \} \\ &= \mathrm{Sgn}\{\ (1-r)fL_R - (1-h)hU\ \} \\ &= \mathrm{Sgn}\{\ [\ (1-r)f - (1-h)r\ ]L_R\ \} \qquad \text{(A9)} \end{aligned}$$

(see equations (4), (7), (8) and (9)). For $r \approx 0$, equation (A9) implies Sgn $dW_R/dr \approx$ Sgn $fL_R > 0$. Q.e.d.

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